INSTRUCTION BULLETIN

No. 2866
Machine: 220
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Installation Instructions for Hydraulic Pump Replacement Kit 33277.

This kit is designed to convert a machine with a Vickers TA-6 hydraulic pump to Oilgear pump 33230. Please follow the step-by-step directions.

HYDRAULIC PROCEDURES:

* Cleanliness is extremely important when working on hydraulic components. Work in a clean, dustfree area. Dirt and foreign material in the hydraulic system can damage equipment and impair operation.

* Before disconnecting hydraulic hoses or fittings, thoroughly clean the outside area to help prevent dirt entry into the system.

* Mark hoses before disconnecting them. Immediately cap disconnected hoses.

* Discard any hydraulic fluid drained from the system. Replenish the hydraulic reservoir with new, approved fluid.

PROCEDURE:

1. Park the machine on a smooth, level surface. Turn off the engine and set the parking brake.

   WARNING: Always turn off the engine and set the parking brake when working on the machine.

2. Remove and save the accessory pump drive belt.

3. Drain the hydraulic reservoir. Discard the fluid.

4. Remove and discard all parts indicated in Fig. 1. Save the propelling pump drive sheave and pump centering springs for reuse.

INSTALLATION:

1. Rework the instrument panel as shown in Fig. 2.

2. Mount the filter bracket plate 69179 to the instrument panel using --

   (2) Pan screws, 3/8 - 16 x 1.00"
   (2) Lock washers, 3/8"
   (2) Flat washers, 3/8"
   (2) Hex nuts, 3/8 - 16

3. Mount existing pump drive sheave to new pump.

4. Modify vacuum fan housing base:

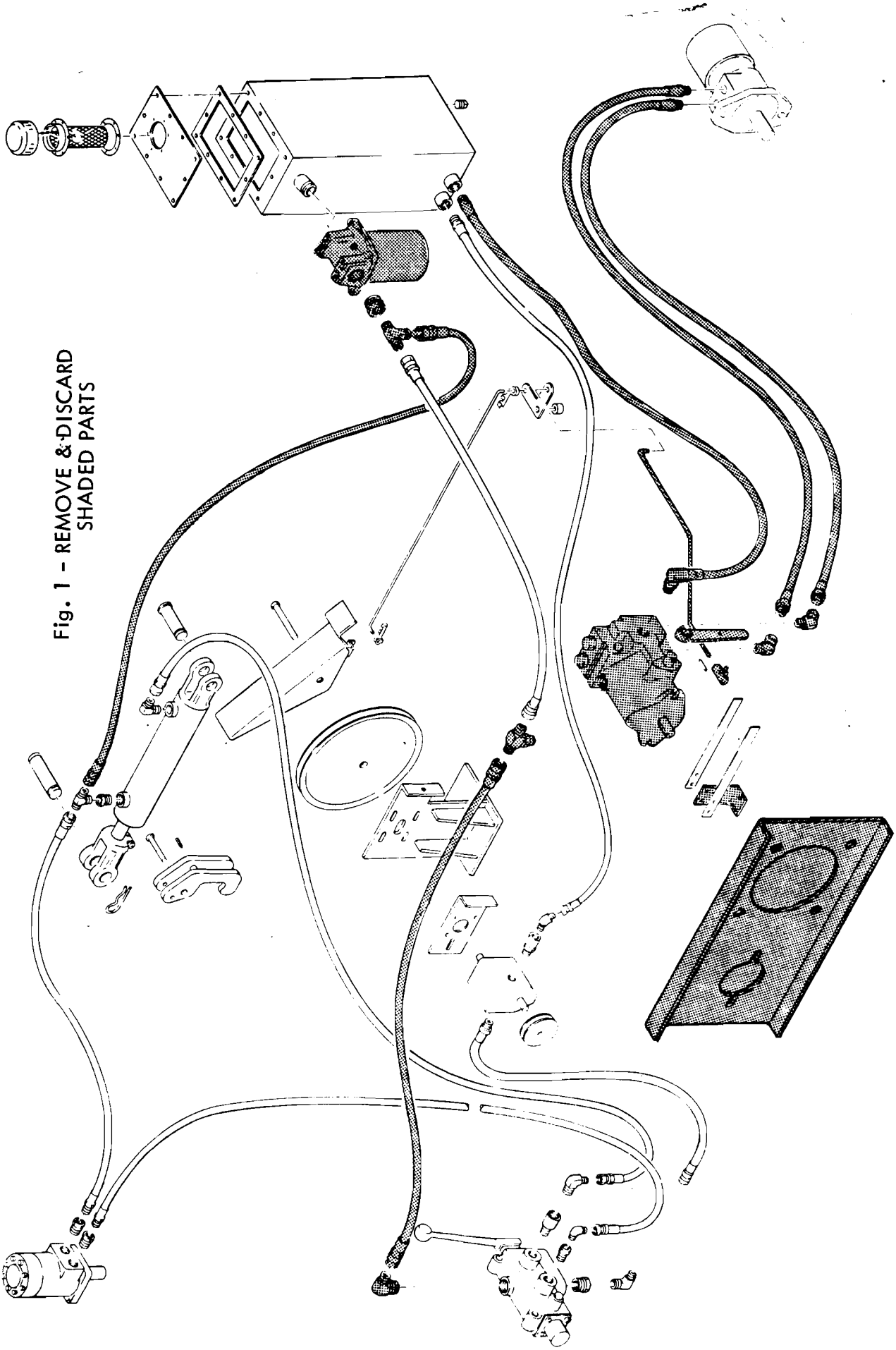

Fig. 1 - REMOVE & DISCARD SHADED PARTS

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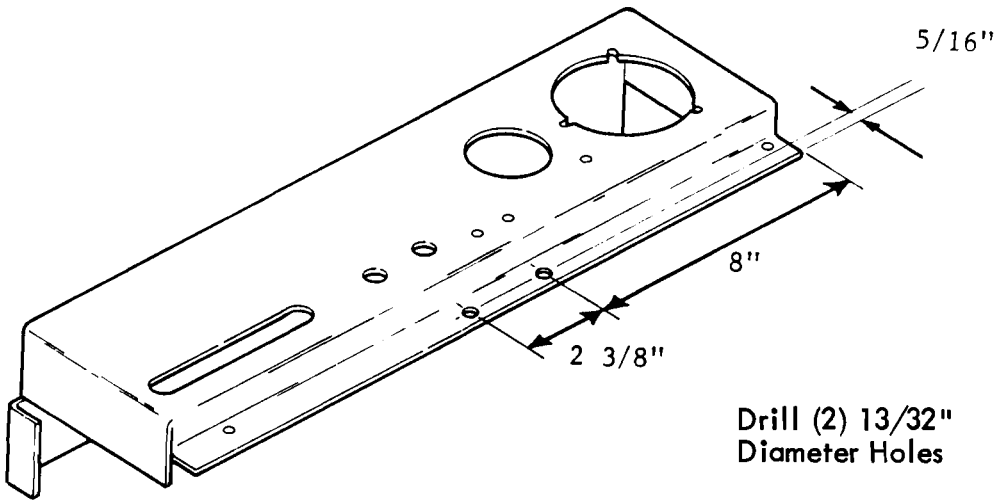


Fig. 2 - REWORK INSTRUMENT PANEL

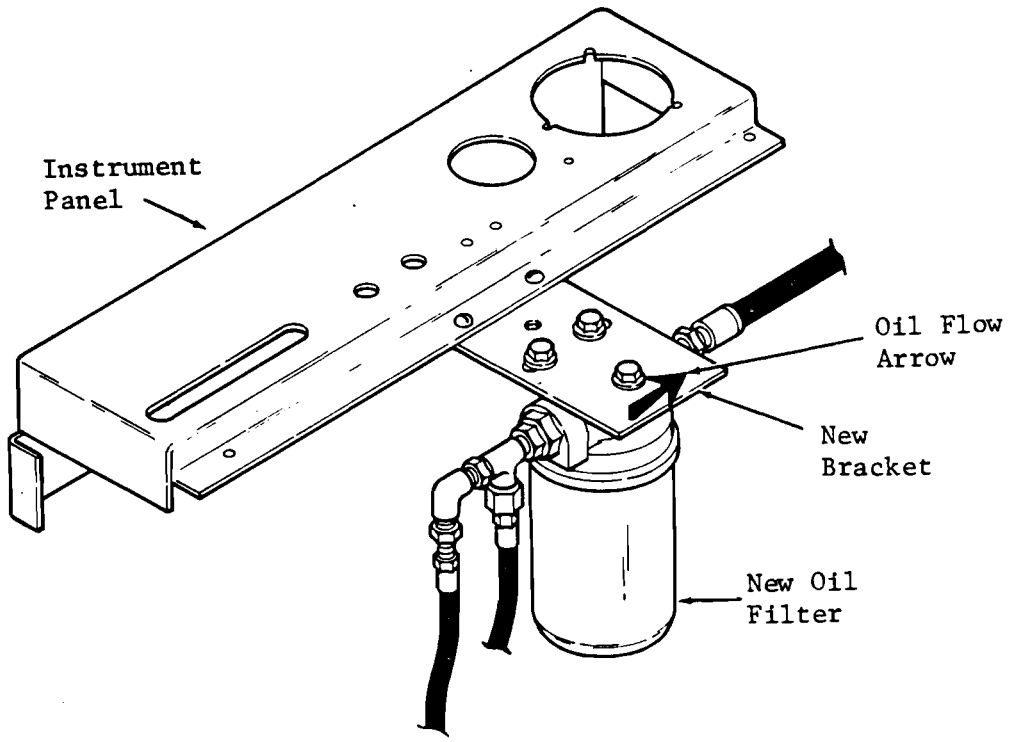
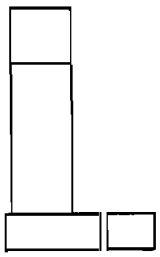


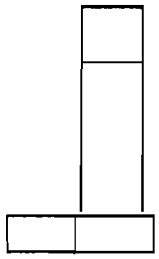
Fig. 3 - ATTACH BRACKET 69179 TO INSTRUMENT PANEL

IMPORTANT NOTE: The new pump assembly will not fit between the new pump mount and fan assembly.

5. With a hacksaw, cut off 1" from fan housing base. Save cut off part. Add the cut off part to the other side.



Cut off 1" from fan housing base.



This is how the new base will look.

6. Fan sheave 49844, mounted on the engine flywheel has to be spaced out 1" to accommodate the longer length of the new pump.

   a. Loosen sheave 49844 and mount new spacer 33213 between the sheave and the engine.

   b. Use the (4) 3/8 - 16 x 2.00" screws and lock washers to fasten.

7. Install fittings to new pump: (Fig. 5)

   a. 45° elbows at "A" and "B" ports, (2) 44936

   b. 45° elbow 47513 at case drain port.

   c. Connector 47552 and elbow 44868 at replenishing port.

8. If necessary, assemble oil filter fittings to filter:

   a. With the directional arrow pointing to the right, add connector 47516, tee 56694, and elbow 54194, to the left of the arrow. Add connector 47754 to the tee.

   b. On the right side of the arrow, add connector 42227. (Also see Fig. 3)

9. At the control valve (Fig. 5), install the appropriate elbow. There are (3) elbows in the kit:

   a. Elbow 47272 is for a 3/4 NPTF thread port.

   b. Elbow 51782 is for a 7/8" - 14 o-ring thread port.

   c. Elbow 53076 is for a 1-1/16" - 12 o-ring thread port.

10. At the hydraulic reservoir, install the following: (Fig. 5)

    a. Connector 46484

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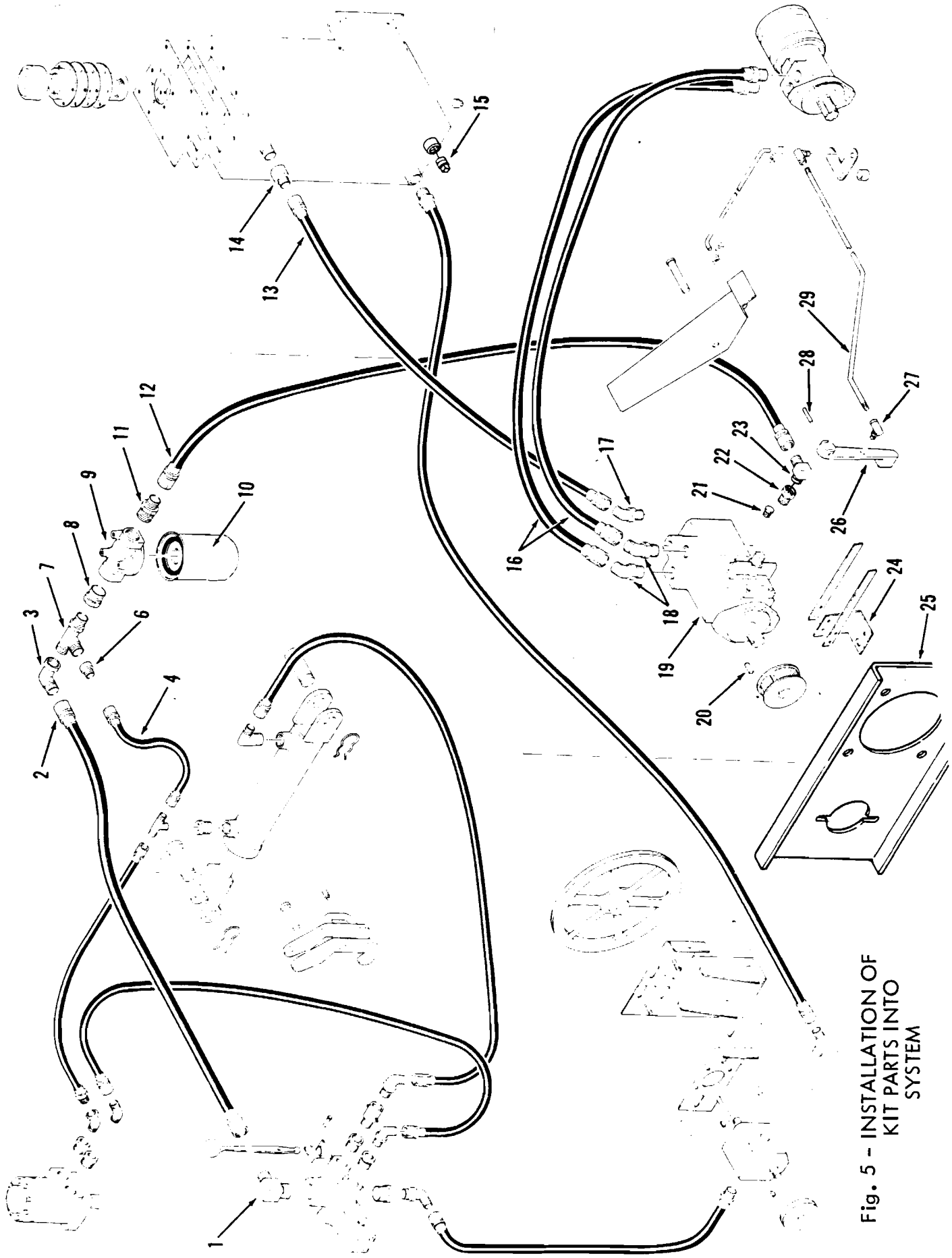

Fig. 5 - INSTALLATION OF KIT PARTS INTO SYSTEM

b. Install pipe plug 17521. Fill reservoir with new, approved hydraulic fluid.

11. Replace main brush lift arm, parts 33226 and handle 16447.

12. Install new control rod 33233 (Fig. 5, item 29). Reuse existing ball joint and balljoint 14506 from kit (Fig. 5, item 27).

13. Install new spring mounting bracket 33222 using existing hardware. Reinstall existing springs.

14. Mount the pump to the new pump mount 69025 using --

    (4) Hex screws, 7/16 - 14 x 1.00"
    (4) Lock washers, 7/16"

15. Install the pump/pump mount to the engine with existing hardware.

16. Install oil filter assembly at instrument panel. Use --

    (3) Pan screws, 5/16 - 18 x 3/4"
    (3) Flat washers, 5/16"
    (3) Lock washers, 5/16" See Fig. 3

17. Connect pintle arm to pump and to balljoint control rod assembly. The new arm is 69107. See Fig. 5, item 26.

18. Reconnect and install new hoses (Fig. 5).

    a. Install hose 47526 between the pump and hydraulic oil filter.

    b. Install hose 42212 between the pump and the hydraulic reservoir.

    c. Install (2) hoses 47893 between the drive motor and the pump.

        NOTE: Tighten the hoses on the drive motor first. See Fig. 5.

    d. Install hose 49942 between the tee on the lift cylinder and the tee on the hydraulic oil filter (Fig. 5).

    e. Install hose 52908 between the new elbow on the control valve and the elbow on the hydraulic oil filter (Fig. 5).

19. Use cable ties to tie hoses out of the way. If the three hoses from the top of the pump (two to the drive motor, and the other to the hydraulic reservoir) tend to interfere with the fan belt, use cable ties to either bundle the hoses out of the way or to anchor them to some nearby spot.

20. Install new pump drive belt 69026. Reinstall existing accessory pump drive belt. Adjust the propelling pump drive belt to get 11/64" deflection with a 4 to 5 lb. force. Adjust the accessory pump drive belt to 75 pounds of tension. (Fig. 6).

    a. If adjustment is required, loosen pump mounting bolts, (A" and shift pump in slots to attain correct tension.

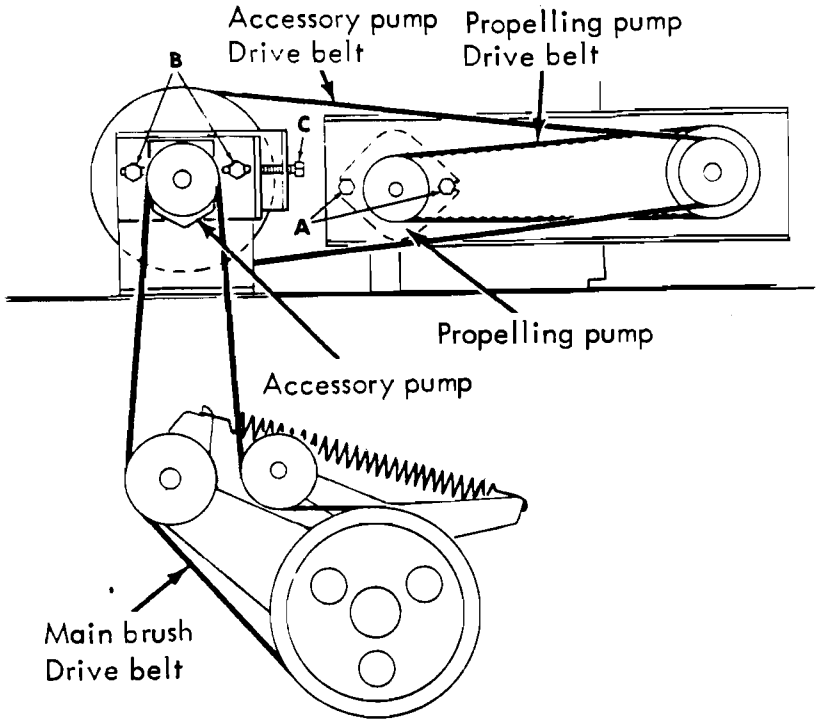

Fig. 4 - BELT PLACEMENT & ADJUSTMENT

b. When adjusted, tighten bolts and recheck belt tension.

NOTE: Do NOT over tighten belt. Sight along sheaves to make sure they are properly aligned. An overtightened belt or misaligned sheaves cause belt failure.

STARTUP PROCEDURE: Remove case drain plug and prime the pump.

1. Jack rear wheel off floor 1/4 to 1/2 inch.

2. Disconnect spark plug wires and crank engine for 30 seconds with foot pedal in neutral.

3. Reconnect spark plug wires, start engine and run with throttle in the idle position. Check for correct operation of foot pedal. Adjust centering springs if necessary. If adjustment is needed, stop the engine.

   a. Loosen the hex screws holding the centering assembly mounting bracket.

   b. Shift the centering assembly in slotted holes until the machine does not creep in either direction. Then tighten bracket mounting bolts.

   WARNING: Do not make adjustment with the engine running. Move the centering assembly in small increments and check by trial and error until the correct adjustment is attained.

4. Depress foot pedal 1/4 to 1/3 stroke and run for 30 seconds.

5. Check direction of rotation of rear wheel. If direction is reversed, switch hose connections at the pump.

6. Continue holding the foot pedal and turn on all brushes. Run for one minute.

7. While continuing to hold the foot pedal, raise and lower the hopper three times.

8. Depress foot pedal fully for 30 seconds. Release to neutral.

9. Stop engine and lower rear wheel to floor.

10. Check hydraulic reservoir. Refill to proper level, if necessary.

11. Start engine and run at idle for 30 seconds.

12. Advance throttle and run machine of floor for 30 seconds.

13. If the above procedure did not bleed all air from the lines, it may be necessary to crack or loosen some fittings or hoses.

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BILL OF MATERIAL FOR KIT 33277

Ref. No.*	TENNANT Part No.	Description	Qty.
1	47272	ELBOW, for 3/4 NPTF Port	1
	51782	ELBOW, For 7/8" - 14 O-ring port	1
	53076	ELBOW, For 1-1/6" - 12 O-ring port	1
2	52908	HOSE	1
3	54194	ELBOW	1
4	49942	HOSE	1
6	47754	FTG, Stright	1
7	56694	TEE	1
8	47516	FTG, Straight	1
9	67718	FILTER, Deluxe	1
10	67718-2	ELEMENT, Filter	1
	25537	SCREW, Pan, 5/16 - 18 x 3/4"	3
	32491	WASHER, Flat, 5/16"	3
	32984	WASHER, Lock, 5/16"	3
11	42227	FTG, Straight	1
12	47526	HOSE	1
13	42212	HOSE	1
14	46484	FTG, Stright	1
15	17521	PLUG, Pipe	1
16	47893	HOSE	2
17	47513	ELBOW	1
18	44936	ELBOW	2
	33214	PUMP, Assembly, Oilgear	1
19	33230	PUMP, Oilgear	1
21	46482	PLUG, Case drain	1
	69158	PLATE, Back	1
	69159	GASKET, Backplate	1
	39811	SCREW, Hex, 1/2 - 13 x 1-1/2"	2
	32989	WASHER, Lock, 1/2"	2
	32493	WASHER, Flat, 1/2"	2
	25015	NUT, Hex, 1/2 - 13	2
22	47552	FTG, Straight	1
23	44868	ELBOW	1
24	33222	BRACKET, Pump centering spring	1
25	69025	MOUNT, Pump	1
	18548	SCREW, Hex, 7/16 - 14 x 1.00"	4
	39358	WASHER, Loc, 7/16"	4
26	69107	ARM, Pump pintle	1
27	14506	BALL JOINT	1
28	26103	PIN, Roll	1
29	33223	ROD, Pump control	1
	49266	TIE, Cable	5
	69026	BELT, Positive drive	1
	33213	SPACER, Fan drive sheave	1
	27990	SCREW, Hex, 3/8 - 16 x 2.00"	4
	33226	ARM, Main brush lift arm	1
	16447	GRIP, Handle	1